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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|---------------------------|---------------------|------------------|
| 10/533,791 | 10/27/2005 | Solon Yasuhiko Tagusagawa | 0315-0161PUS1 | 2209 |

2292 7590 11/02/2007
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| EXAMINER |
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FOGARTY, CAITLIN ANNE

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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4116

| NOTIFICATION DATE | DELIVERY MODE |
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11/02/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/533,791

Applicant(s)

TAGUSAGAWA, SOLON
YASUHIKO

Examiner

Caitlin Fogarty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 04 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4 May 2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Status of Application

1. Claims 1 – 10 are pending and presented for the examination.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Brazil on November 11, 2002. It is noted, however, that applicant has not filed a certified copy of the PI 0204587.7 application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

3. The information disclosure statement (IDS) was submitted on May 4, 2005. This submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. Please refer to applicant's copy of form PTO-1449 submitted herewith.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 1 – 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The term "with large surface area" in claims 1 – 10 is a relative term which renders the claim indefinite. The term "large" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

7. Claim 1 recites the limitation "the oxidized powder" in the third line of the claim. There is insufficient antecedent basis for this limitation in the claim. Also, the limitations in parentheses in claim 1 are indefinite because it is unclear if the information contained in the parentheses is essential to the claim. The term "powder of adequate size" in claim 1 is a relative term, which renders the claim indefinite. The term "adequate" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

8. The limitations in parentheses in claim 9 are indefinite because it is unclear if the information contained in the parentheses is essential to the claim.

Claim Rejections - 35 USC § 102/103

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1 and 3 – 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fisher (US 4,923,531).

In regards to claim 1, col. 2 line 5 – col. 3 line 51 and col. 4 lines 39 – 56 of Fisher disclose a process for the production of niobium and/or tantalum powder, characterized by comprising the steps of reduction of an oxidized powder (powder of adequate size, consisting basically in metallic niobium and/or tantalum of high purity) with alkaline earth elements in a bath of molten salts, subsequently followed by leaching, rinsing and drying the product thus obtained. Fisher does not specifically disclose the step of filtration, however, the filtration as claimed would have been inherently possessed in Fisher's invention (see MPEP 2112) because one of skill in the art would recognize that in order to separate the niobium and/or tantalum powder product from the residual deoxidant and carrier, the metal would have to be filtered after leaching and then rinsed and dried. The description of the niobium and/or tantalum powder with a large surface area does not have patentable weight because it is a characteristic of the product and does not further limit the process as claimed.

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In regards to claim 3, col. 3 lines 15 – 51 of Fisher disclose that the bath comprises a molten salt or a mixture of molten salts comprised by chlorides of alkali metals or earth alkali metals.

Regarding claim 4, which is dependent on claim 3, col. 2 line 5 – col. 3 line 51 and col. 4 lines 39 – 56 of Fisher teach the limitations of claim 3 and that the chlorides of alkali metals or earth alkali metals comprise CaCl_2 and NaCl . Fisher differs from claim 4 in that Fisher does not teach that the chlorides of alkali metals or earth alkali metals comprise MgCl_2 , KCl , or CaF_2 . However, since applicant did not specify in claim 4 whether or not the “chlorides of alkali metals or earth alkali metals comprise CaCl_2 , NaCl , MgCl_2 , KCl , **and** CaF_2 ” or the “chlorides of alkali metals or earth alkali metals comprise CaCl_2 , NaCl , MgCl_2 , KCl , **or** CaF_2 ” the examiner assumed applicant meant to use “**or**” based on the fact that the examples listed did not include all the chlorides or fluorides listed.

Regarding claim 5, col. 4 lines 6 – 15 of Fisher teach that the reducing step comprises a salt bath at temperatures between 700°C and 1200°C . The disclosed temperature range is a species of the generic range recited in claim 5. “A generic claim cannot be allowed to an applicant if the prior art discloses a species falling within the claimed genus.” The species in that case will anticipate the genus. In re Slayter, 276 F.2d 408, 411, 125 USPQ 345, 347 (CCPA 1960); In re Gosteli, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989). See MPEP 2131.02. Therefore, claim 5 is anticipated by Fisher.

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In regards to claim 6, col. 3 line 54 – col. 4 line 6 of Fisher teach that the reduction of the oxidized metal is carried out in a salt bath under stirring by an inert gas containing nitrogen. Fisher does not exclude nitrogen as an option for the inert gas, but rather mentions that nitrogen should not be used with certain metals such as titanium because it embrittles the metal. This implies that it is acceptable to use nitrogen with niobium and tantalum.

All the critical elements required by the instant claims 1 and 3 – 6 are well taught by Fisher and any unmentioned portions of the claims would have been readily envisaged, or alternatively obvious over common knowledge of a skilled artisan. Thus, claims 1 and 3 – 6 are properly included in this 35 U.S.C. 102/103 rejection.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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14. Claims 2 and 7 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 4,923,531) in view of Löffelholz et al. (US 6,136,062).

In regards to claim 2, which is dependent on claim 1, col. 2 line 5 – col. 3 line 51 and col. 4 lines 39 – 56 of Fisher teach the limitations of claim 1 (discussed above in the 35 USC 102(b) rejection) and that the reducing step comprises as reactive elements calcium or another earth alkali metal capable of reducing the niobium and/or tantalum oxide or the oxidized compounds thereof.

Fisher differs from claim 2 in that Fisher does not teach that the reducing step comprises magnesium as a reactive element.

It would have been obvious to one of ordinary skill in the art at the time the invention was filed to modify Fisher in view of Löffelholz et al. because Löffelholz et al. teach that the preferred reducing metals according to their invention are magnesium, calcium, lanthanum, and cerium and that magnesium is particularly preferred (see col. 1 lines 62 – 64).

Regarding claim 7, which is dependent on claim 1, col. 2 line 5 – col. 3 line 51 and col. 4 lines 39 – 56 of Fisher teach the limitations of claim 1 (discussed above in the 35 USC 102(b) rejection).

Fisher differs from claim 7 in that Fisher does not teach that the oxidized powder is fed in a continuous and controlled manner to the bath of salts containing the reducing agent.

It would have been obvious to one of ordinary skill in the art at the time the invention was filed to modify Fisher in view of Löffelholz et al. because Löffelholz et al.

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teach that the oxidized powder is fed in a continuous and controlled manner to the bath of salts containing the reducing agent (see col. 2 lines 13 – 17 and col. 4 lines 16 – 22).

In regards to claim 8, which is dependent on claim 1, col. 2 line 5 – col. 3 line 51 and col. 4 lines 39 – 56 of Fisher teach the limitations of claim 1 (discussed above in the 35 USC 102(b) rejection).

Fisher differs from claim 8 in that Fisher does not teach that the mixture of oxidized powder and the reducing agent in the salt bath is carried out prior to the melting step.

It would have been obvious to one of ordinary skill in the art at the time the invention was filed to modify Fisher in view of Löffelholz et al. because Löffelholz et al. disclose that the mixture of oxidized powder and the reducing agent in the salt bath can occur prior to the melting step (see Examples 5 and 7).

Regarding claim 9, which is dependent on claim 1, col. 2 line 5 – col. 3 line 51 and col. 4 lines 39 – 56 of Fisher teach the limitations of claim 1 (discussed above in the 35 USC 102(b) rejection) and that nitrogen is added to the salt bath.

Fisher differs from claim 9 in that Fisher does not teach that the reduction in molten salt is carried out in a controlled atmosphere with partial pressures of nitrogen that may vary between 0.0005 atm and 1 atm or by means of injection of N₂ gas or a mixture of inert gas and N₂ (containing from 0.1 to 50% N₂) in the molten salt or that the nitrogen content in the powders of niobium and/or tantalum varies from 100 to 70,000 ppm.

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It would have been obvious to one of ordinary skill in the art at the time the invention was filed to modify Fisher in view of Löffelholz et al. because Löffelholz et al. teach that the reduction in molten salt is carried out in a controlled atmosphere (see col. 2 lines 49 – 52) containing nitrogen. Although Löffelholz et al. do not specifically teach that the partial pressures of nitrogen vary between 0.0005 atm and 1 atm it would have been obvious to one of ordinary skill in the art to select that range because the process disclosed by Löffelholz et al. occurs at atmospheric pressure and therefore the partial pressure of nitrogen in the atmosphere could be up to 1 atm. Löffelholz et al. also disclose that the nitrogen content in the niobium powders can be up to 20,000 ppm which overlaps with the range recited in claim 9. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2144.05.

One would have been motivated to modify Fisher in view of Löffelholz et al. because both references teach a process for producing niobium and/or tantalum powders by the reduction of corresponding niobium and/or tantalum oxides by means of alkaline earth metals.

15. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 4,923,531) in view of Chang (US 5,234,491).

In regards to claim 10, which is dependent on claim 1, col. 2 line 5 – col. 3 line 51 and col. 4 lines 39 – 61 of Fisher teach the limitations of claim 1 (discussed above in the 35 USC 102(b) rejection) and that the step of recovery of the niobium and/or tantalum

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powder is conducted by means of the procedures of solubilization of the salt in water and leaching of the solid product obtained by using an acidic aqueous solution containing HCl.

Fisher differs from claim 10 in that Fisher does not teach that the acidic aqueous solution contains HCl and HF.

It would have been obvious to one of ordinary skill in the art at the time the invention was filed to modify Fisher in view of Chang because Chang discloses that the extracted tantalum powder is treated with an acid wash containing HCl, HNO₃, and HF to remove residual impurities on the powder surface (see col. 8 lines 49 – 55).

One would have been motivated to modify Fisher in view of Chang because both references teach a process for producing tantalum powder with a final step of washing the powder with acid.

Conclusion

16. No claim is allowed.

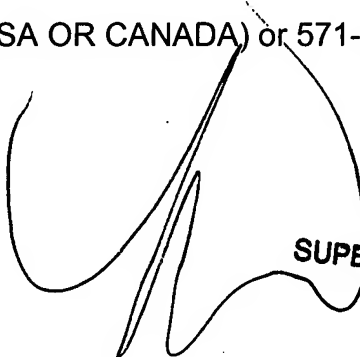
17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caitlin Fogarty whose telephone number is 571-270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CF



VICKIE Y. KIM
SUPERVISORY PATENT EXAMINER